

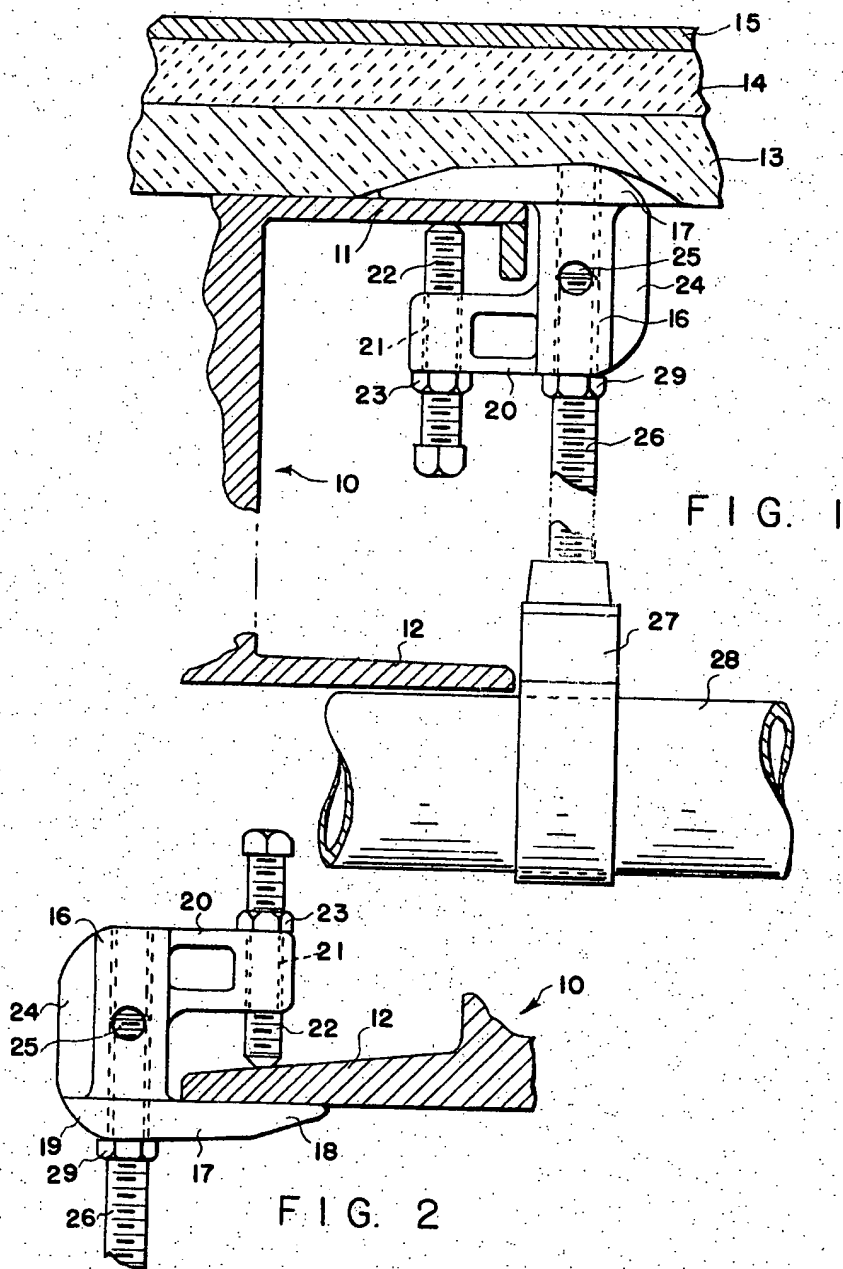
May 23, 1967

A. J. HIRT

3,321,161

HANGER CLAMP

Filed June 29, 1966



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## HANGER CLAMP

Andrew J. Hirt, Youngstown, Ohio, assignor to Metelco, Inc., Struthers, Ohio, a corporation of Ohio  
Filed June 29, 1966, Ser. No. 561,593  
1 Claim. (Cl. 248—72)

This invention relates to an improved hanger clamp having particular utility in supporting pipe or conduit from overhead ceiling structures as in automatic sprinkler and wiring installations, for example. It is common practice to utilize the horizontal flanges of structural building beams or joists for this purpose, providing C-shaped clamps for more or less permanent attachment to such flanges and suspending the objects to be supported from such clamps. In some installations it is more convenient and desirable to position the clamps on the upper flanges of the beams or joists and the supported objects either between the top and bottom flanges of the structural members or below the bottom flanges, while in other installations it may be necessary or desirable to position the clamps on the bottom flanges. It is the primary object of the present invention to provide a hanger clamp for these purposes which while simple in design and inexpensive to produce is of improved strength and of greater versatility than clamps heretofore proposed for similar purposes.

A further object of the invention is to provide a hanger clamp of the general kind outlined above which is of improved strength and non-interfering configuration particularly when used on the upper flanges of the structural beams or joists to suspend water pipes, other conduits and other objects below the lower flanges of such structural members.

A further object of the invention is to facilitate the use of hanger clamps of the general nature outlined above with adjustable depending rods, usually threaded, which actually suspend the objects to be supported from such clamps. As will appear later, this specific object is accomplished by the invention by providing means to indicate and assure sufficient interconnection between the rods and the clamps to safely bear the loads imposed on the rods, all without requiring any thru passage of the rods vertically through the clamps. This arrangement of the invention not only facilitates the installation and adjustment of the rods but it also provides for a greater range of adjustment and allows the top surfaces of the clamps to be kept smooth and uncluttered to facilitate the laying of flooring material on the top flanges of the building structural members when the clamps are hooked over such flanges.

The above and other objects and advantages of the invention will become apparent upon consideration of the following drawing and detailed specification wherein there is disclosed a preferred embodiment of the invention.

In the drawing:

FIGURE 1 is a fragmentary vertical section of a building floor structure but showing inside elevation the hanger clamp of my invention as being secured to the upper flange of a floor beam as supporting a pipe length positioned immediately below the lower flange of the beam; and

FIGURE 2 illustrates the clamp of FIGURE 1 in inverted position and as secured to the bottom flange of the floor beam.

In the drawing, reference numeral 10 designates generally a floor beam having an upper flange 11 and a lower flange 12. As commonly done a floor or roof comprised of superimposed layers 13, 14 and 15 may be laid down on the flanges 11 of the structural beams 10, and the

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lowermost layer 13 may be of insulation board, lightweight concrete with or without reinforcing mesh, etc., and in any event it is usually desirable that the upper jaw of the hanger clamp be as flat and rounded as possible particularly when the clamp is to be used on an upper beam or joist flange as in FIGURE 1. This characteristic, and particularly the nature of the configuration of the entering end or edge of the top jaw of the clamp is quite if and when the hanger clamp is to be installed in an existing building structure.

The hanger clamp of my invention is a unitary generally C-shaped member, preferably produced by casting from suitable material and has a tubular body portion 16 which is interiorly bored and threaded and which forms the principal base or body portion of the clamp. Cast integrally at one end of the tubular portion 16 is a flat and widened jaw 17 formed with a wedge 18 at its free end and rounded at 19 on its outer face—its other end portion which extends beyond the axial projection of the bore through tubular portion 16. Note that this bore extends entirely through both the portion 16 and the flat jaw 17 so that the clamp may be used in either vertical orientation as suggested by the two figures of the drawing.

Cast integrally with the tubular portion 16 is the other leg or jaw 20 of the clamp which is generally parallel with and coextensive with the jaw 17 for a substantial portion of the length of the latter. The outer free end of jaw 20 is provided with a threaded thru bore 21 generally parallel with the threaded bore in tubular portion 16, and it will be obvious that the threaded bore 21 is to receive a clamp screw 22 to cooperate with the jaw 17 whereby the clamp may be rigidly secured to either an upper or lower flange of the structural beam or joist above referred to. A lock nut 23 prevents inadvertent loosening of the clamp screw by vibration, etc.

Also cast integrally with the tubular body portion 16 is a rib 24 on the opposite side of this body portion from the jaw 20, and it should be noted that this rib extends to the adjacent projecting end of the jaw 17 whereby any tendency of this jaw 17 to rock about an axis transverse to the bore in portion 17 and to break away from this portion is most effectively resisted. For a purpose to be later explained, an aperture 25 is placed in the side wall of the body portion 16 substantially intermediate the top and bottom ends thereof and circumferentially related substantially midway between the rib 24 and the jaw 20. This aperture 25 extends at least into the threaded bore of portion 16 and, if desired, it may extend entirely through this portion 16.

In the use of the clamp above described, threaded hanger rods 26 are screw threadedly received in the threaded bores passing through the portions 16 of the clamps, it being understood in the art that the lower ends of such rods 26 carry hanger straps 27 which in practice cradle the pipe lengths or other objects to be suspended, a portion of one such pipe length being shown at 28. Also, it is well understood in the art that the rods 26 may be rotated with respect to the straps 27, headed ends (not shown) being formed on the lower ends of the suspending rods to permit this to be done while yet supporting the straps. The arrangement facilitates adjustment of the elevation of the pipe or other objects being suspended since the selected or cut length of the rods 26 need only be approximate—final adjustment being made by rotating the rods further into or out of the clamps which at this time are securely fastened to the beam or joist flange or flanges being used. At this stage the apertures 25 become quite important since they provide inspection windows whereby the tradesman can tell at a glance whether or not there is sufficient penetration of the rods 26 into the

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clamp structures to carry the anticipated loads. As in the case of the clamp screws 22 the rods 26 have lock nuts 29 to prevent the inadvertent loosening of the rods 26 due to vibration, etc.

It should now be apparent that I have provided an improved hanger clamp which accomplishes the objects initially set out above. The configuration of the unitary article of the invention is such that the same may be used alternatively on either the upper or the lower flange of a beam without interfering appreciably with the overlaying of a flooring layer when the clamp is applied to the upper flange or with the application of a ceiling layer when the clamp is applied to the lower flange. This is made possible by the thru nature of the threaded bore in the body portion 16 of the device together with the flat and widened configuration of the jaw 17. Further, the configuration of the jaw 17 enables the clamp to be positioned on the beam even though some floor or ceiling layering material is already applied—this being made possible by the wedge-shaped end of the jaw 17. The general structure of the article is also such that even though the point of support (of the rod 26) is offset from the clamping point to provide clearance for the lower beam flange when the clamp is attached to the upper flange the resultant structure is yet of adequate strength to support heavy pipes and conduits. Contributing to this strength is the rib 24 as explained above. Also of substantial utility is the citing aperture 25.

I claim:

A hanger clamp for supporting a pipe from a building beam having a horizontally extending flange, comprising a body having a threaded bore extending therethrough, first and second jaws extending generally at right angles from said body and being spaced apart, said second jaw having a longitudinally extending threaded bore, said body being adapted to be positioned just beyond a free edge of said horizontal flange with its bore vertical and with said

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first and second jaws disposed on opposite sides of said flange, the spacing between the jaws being greater than the thickness of said flange to permit free disposition of the jaws around the flange, a hanger screw threaded into the bore of said body and extending vertically and downwardly therefrom, a pipe hanger strap having a swivel connection with the lower end of said hanger screw, the connection permitting rotating of the screw relative to the strap so that the screw may be rotated while the strap is supporting a pipe to effect vertical adjustment of said pipe, a clamp-screw threaded through the bore of said second jaw and having an end movable toward said first clamp by proper threading action of said clamp-screw to tightly engage said end and said first jaw against upper and lower surfaces of said flange, and an inspection opening in said body about midway of its ends and extending into said bore to permit view of said hanger screw and thereby permit determination of whether or not it is threaded far enough in the bore of said tubular body to support the load on said hanger screw.

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1,392,810	4/1921	Zifferer	284—59
1,496,694	6/1924	Watson	248—228 X
1,596,317	8/1926	Skinner	248—59
1,840,216	1/1932	Tormo	248—72
2,522,255	9/1950	Climo	248—42
2,988,316	6/1961	Metcalfe	248—228
3,058,713	10/1962	Nemire et al.	248—228

JOHN PETO, *Primary Examiner.*

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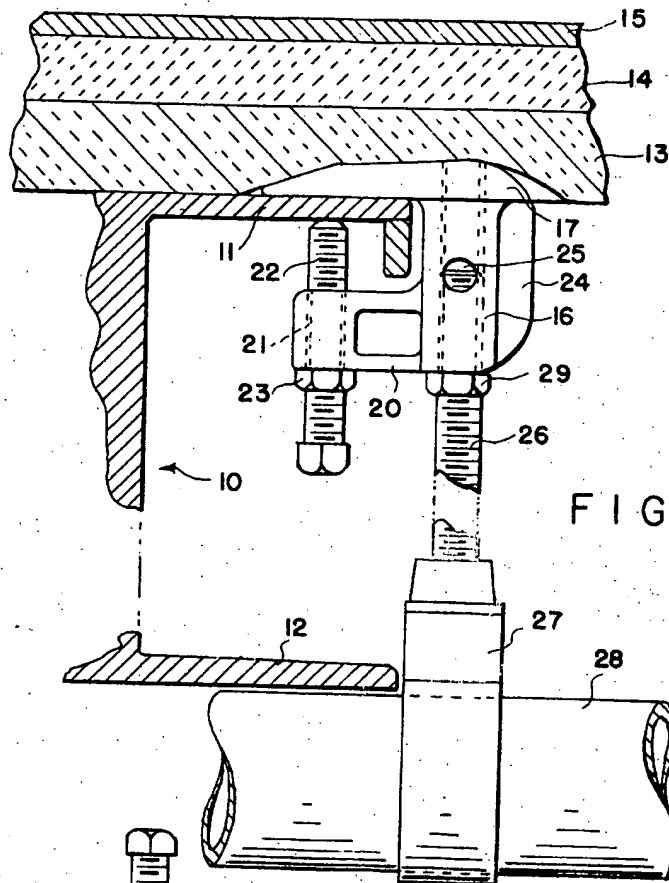


FIG. 1

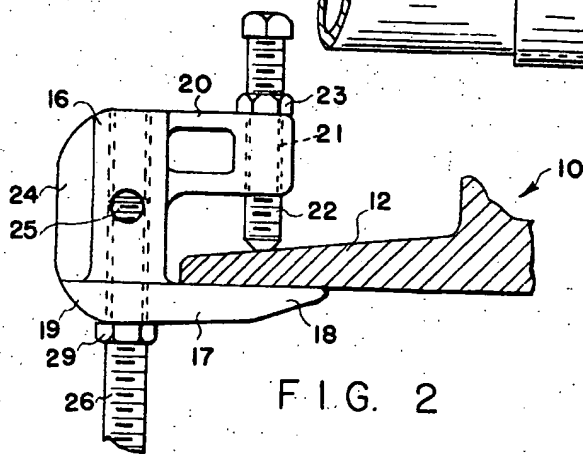


FIG. 2

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first and second jaws disposed on opposite sides of said flange, the spacing between the jaws being greater than the thickness of said flange to permit free disposition of the jaws around the flange, a hanger screw threaded into the bore of said body and extending vertically and downwardly therefrom, a pipe hanger strap having a swivel connection with the lower end of said hanger screw, the connection permitting rotating of the screw relative to the strap so that the screw may be rotated while the strap is supporting a pipe to effect vertical adjustment of said pipe, a clamp-screw threaded through the bore of said second jaw and having an end movable toward said first clamp by proper threading action of said clamp-screw to tightly engage said end and said first jaw against upper and lower surfaces of said flange, and an inspection opening in said body about midway of its ends and extending into said bore to permit view of said hanger screw and thereby permit determination of whether or not it is threaded far enough in the bore of said tubular body to support the load on said hanger screw.

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